

REMARKS

Claims 1-8, 22-23, 25, and 61-75 are currently pending in this application. Claims 9-21, 24 and 26-60 were previously canceled without prejudice or disclaimer. Claims 1, 22, 74 and 75 are amended herein. Claim 64 is canceled herein. Claims 1-8, 22-23, 25, 61-63 and 65-75 will be pending on entry of the current amendments.

Support for the amended claims can be found throughout the specification as originally filed, *inter alia*, on page 5, line 11 extending to page 6, line 2; on page 29, line 20 extending to page 30, line 15; on page 32, lines 14-23; and on page 41, lines 5-10. Accordingly, Applicant submits that no new matter is introduced into the specification by way of the present amendments.

Objections

Claim 3 was objected to for the recitation of “;” at line 3 after “Tsuga”. Applicant’s file copy has been reviewed regarding pending claim 3, and Applicant respectfully notes that Applicant’s file copy does not recite a semi-colon after the word “Tsuga”. Applicant’s file copy of claim 3 instead provides a comma after the word “Tsuga”. Applicant respectfully requests reconsideration and withdrawal of the objection to claim 3.

Claim 64 was objected to as being a substantial duplicate of claim 8. Applicant has canceled claim 64 herein. Applicant respectfully reserves the right to prosecute the subject matter of claim 64 in one or more continuation or divisional applications.

Rejections

Rejections under 35 U.S.C. § 112, second paragraph

Claims 23, 25 and 71-74 were rejected under 35 U.S.C. § 112, 2nd paragraph, as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. More specifically, claims 75, 23, 25 and 71-74 were rejected as allegedly vague and indefinite for the recitation of “a medium having at least one ethylene inhibitor, oxygen radical scavenger, divalent cation, a second cryoprotective agent that is the same or different

from the first cryoprotective agent, or combinations thereof.” Applicant has amended claim 75 to require that the medium have a second cryoprotective agent that is the same or different from the first cryoprotective agent, and optionally at least one ethylene inhibitor, oxygen radical scavenger, divalent cation, or combinations thereof. Therefore, the presence of a second cryoprotective agent is necessary in accordance with the claim scope, and the medium may optionally further contain at least one ethylene inhibitor, oxygen radical scavenger, divalent cation, or combinations thereof. Claims 23, 25, and 71-74 depend from claim 75 and incorporate all of the elements of claim 75. Therefore, Applicant submits that the metes and bounds of claim 75, as well as the claims depending therefrom, are definite. Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 75, 23, 25 and 71-74 under 35 U.S.C. § 112, 2nd paragraph.

Claim 74 was further rejected under 35 U.S.C. § 112, 2nd paragraph, as lacking sufficient antecedent basis for the recitation of “the cryoprotective agent.” Applicant has amended claim 74 to recite “the second cryoprotective agent”, which finds proper antecedent basis in claim 75 from which it depends. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 74 under 35 U.S.C. § 112, 2nd paragraph.

Rejections under 35 U.S.C. § 103

A. Claims 1-8, 22 and 61-70 were rejected under 35 U.S.C. § 103, as allegedly unpatentable over Panis *et al*, in view of Fretz *et al*, European Patent No. 0147236 and Cino *et al* (U.S. Patent No. 5,527,702).

Applicant respectfully disagrees and traverses this rejection.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met.

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one skilled in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991), In re Wilson, 424 F.2d 1382 (CCPA 1970), MPEP §§ 2142, 2143.

Applicant respectfully notes that the Office Action indicates that Panis *et al* does not disclose incubation techniques in a medium containing cryoprotectant and stabilizer or the use of *Taxus brevifolia* plant cells. The Office Action also states that Fretz *et al* teach incubation after thawing for regeneration of plant cells. Furthermore, the Office Action states that European Patent No. 0147236 teaches regeneration of plant cells in a medium containing a stabilizer, such as silver nitrate and other well known inhibitors, and carbon sources such as sugars, and that Cino *et al* teach a medium and culture therefore, of *Taxus brevifolia* cells.

Applicant respectfully disagrees that the rejected claims are rendered unpatentable by the cited references, either alone or in combination. Applicant submits that Panis *et al* does not teach or suggest the claim elements of serially washing the thawed plant cells in media having successively reduced concentrations of at least one cryoprotective agent, said media also containing a stabilizer, as required by claim 1. Furthermore, the disclosures of Fretz *et al*, European Patent No. 0147236 and Cino *et al* do not remedy the deficient teachings of Panis *et al*, as none of these references teaches or suggests the claim elements of serially washing the thawed plant cells in media having successively reduced concentrations of at least one cryoprotective agent, said media also containing a stabilizer, as required by claim 1.

Similarly, Applicant submits that Panis *et al* at least does not teach or suggest the claim element of plating the thawed plant cells on a medium having reduced concentration of said cryoprotective agent, and recovering thawed plant cells, as required by claim 22. Applicant further submits that Fretz *et al*, European Patent No. 0147236 and Cino *et al* do not rectify the deficient teachings of Panis *et al*, as these references do not teach or suggest the claim element of plating the thawed plant cells on a medium having reduced concentration of said cryoprotective agent, and recovering thawed plant cells, as required by claim 22.

Applicant notes that the Office Action indicates that European Patent No. 0147236 discloses stabilizers, and that it would have been obvious to use a regeneration medium containing a stabilizer in the claimed method. Applicant submits that European Patent No. 0147236 is not directed to plant cell cryopreservation techniques and recovery thereof, but instead is directed to promoting plant regeneration from tissue culture. Therefore, Applicant

submits that there is no motivation to combine the deficient teachings of Panis *et al* with the stabilizers set forth in European Patent No. 0147236, as the purpose of these teachings is different.

Applicant additionally notes that growth media frequently contains compounds that are encompassed by the definition of cryoprotectants. However, Applicant submits that cryoprotectants of the invention are used at concentrations higher than the concentrations of these compounds used in typical growth media. In typical growth media, these compounds are provided at lower concentrations or levels that are useful in maintaining the metabolism of, and to act as a carbon source for, growing plant cells.

As noted above, in order for there to be a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Applicant respectfully submits that Panis *et al*, in view of Fretz *et al*, European Patent No. 0147236 and Cino *et al* do not teach or suggest all of the claim elements. Since all of the claim elements are not taught or suggested by the cited references, Applicant submits that the requirements for a *prima facie* case of obviousness have not been met. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1-8, 22, 61-63 and 65-70 under 35 U.S.C. § 103.

B. Claims 23, 25 and 71-75 were rejected under 35 U.S.C. § 103, as allegedly unpatentable over Panis *et al*, in view of Fretz *et al* and European Patent No. 0147236.

Applicant respectfully disagrees and traverses this rejection.

Applicant respectfully submits that, for the same reasons set forth *supra* in section "A", claims 23, 25 and 71-75 are not rendered unpatentable over Panis *et al*, in view of Fretz *et al* and European Patent No. 0147236, either alone or in combination. Specifically, Applicant submits that Panis *et al* does not teach or suggest the claim elements of washing the thawed plant cells in a medium having reduced concentration of said first cryoprotective agent and a second cryoprotective agent that is the same or different from the first cryoprotective agent, said medium optionally containing at least one ethylene inhibitor, oxygen radical scavenger, divalent cation, or combinations thereof, followed by reducing or removing the cryoprotective agents by

plating the thawed plant cells on one or more media having reduced concentrations of said cryoprotective agents, as required by claim 75.

Applicant further respectfully submits that Fretz *et al* and European Patent No. 0147236 do not teach or suggest the claim elements of washing the thawed plant cells in a medium having reduced concentration of said first cryoprotective agent and a second cryoprotective agent that is the same or different from the first cryoprotective agent, said medium optionally containing at least one ethylene inhibitor, oxygen radical scavenger, divalent cation, or combinations thereof, followed by reducing or removing the cryoprotective agents by plating the thawed plant cells on one or more media having reduced concentrations of said cryoprotective agents, as required by claim 75.

As noted above, in order for there to be a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Applicant respectfully submits that Panis *et al*, in view of Fretz *et al* and European Patent No. 0147236 do not teach or suggest all of the claim elements. Since all of the claim elements are not taught or suggested by the cited references, Applicant submits that the requirements for a *prima facie* case of obviousness have not been met. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 23, 25 and 71-75 under 35 U.S.C. § 103.

CONCLUSION

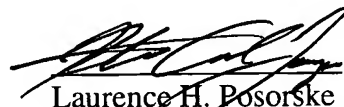
An indication of allowance of all claims is respectfully solicited. Early notification of a favorable consideration is respectfully requested.

Respectfully submitted,

HUNTON & WILLIAMS LLP

Dated: May 26, 2005

By:


Laurence H. Posorske
Registration No. 34,698
Robert C. Lampe III
Registration No. 51,914

HUNTON & WILLIAMS LLP
1900 K Street, N.W.
Washington, D.C. 20006
Telephone (202) 955-1500
Fax: (202) 778-2201